

REMARKS

Claims 17-31, 33-37, and 39-46 remain in this application, with Claims 17, 27, 33, 39, and 41 amended and Claims 1-16, 32 and 38 canceled. Applicants respectfully request reconsideration and review of the application in view of the foregoing amendments and following remarks.

The Examiner again rejected Claims 17-31 and 33-46 under 35 U.S.C. § 103(a) as unpatentable over Young et al. '547 in view of Young et al. '856. These rejections are respectfully traversed.

As discussed previously, Young et al. '547 discloses an apparatus and method for control of model trains using a remote control unit. Referring to Fig. 13, the remote control unit 12 has a keypad and dial that can be operated by a user to control train functions and speed. A transformer 20 is connected to the track and applies power to the track through a power master unit 150. The remote control unit 12 transmits a wireless command signal to both the base unit 14 and to the power master unit 150. The base unit 14 is coupled to the track and communicates RF command signals to the track for controlling train functions. The power master unit 150 can also be used to superimpose DC control signals onto the AC power signals in order to control train functions and speed.

In other words, Young et al. '547 enables a remote control unit 12 to command model trains in either of two ways: (1) by communicating RF command signals to model trains equipped to receive and decode RF command signals, and (2) by superimposing DC control signals onto the power signals applied to the track to model trains equipped to receive and decode superimposed DC control signals. According to Young et al. '547, these control protocols (i.e., RF commands or superimposed DC control signals) are an improvement over "conventional" speed control in which the operator varies the amplitude of the power applied to the track by the transformer in order to control the train speed. Young et al. '547 thereby teaches away from the use of "conventional"

speed control via selective track voltage amplitude variation.

The present invention recognizes a need to permit a user to control train speed using "conventional" speed control, but that communicates signals to the model train using more modern "command" protocols. Young et al. '547 does not allow varying voltage signals applied to the track to be converted and retransmitted as RF command signals to model trains equipped to receive such RF command signals. Hence, Young et al. '547 enables a modern protocol controller to communicate with a conventional protocol train, *but does not enable a conventional protocol controller (i.e., variable output transformer) to communicate with a modern protocol train.* This is a significant improvement in the art that is not suggested or disclosed by Young et al. '547.

Young et al. '856 discloses a control circuit for a model train that is backward compatible with a conventional E-Unit used to detect power interruptions signifying a change in direction. Conventional model train systems use a temporary interruption of AC power on the rails to indicate a desire by the user to reverse direction of the train. The E-Unit is a solenoid device carried by the model train that changes state when a power interruption is detected. The state change of the E-Unit reverses the direction of power applied to the locomotive engine, thereby enabling control over a reversal of direction. Young et al. '856 discloses an override connection to the E-Unit controller that enables remote control using digitally coded signals as well as backward compatibility with systems that use interruption of power to control the E-Unit. But, Young et al. '856 fails to disclose any control device or method that detects changes in DC level and converts these DC level changes to signals in another protocol.

The Examiner contends that Applicants' prior arguments were not persuasive, and maintained the rejection of claims based on Young et al. '547 and Young et al. '856. In its responsive remarks, the Examiner makes several assertions that mischaracterize the invention, the prior art, and Applicant's prior arguments. For example, the Examiner asserts that: "The applicant argues that Young et al '547 does not allow for varying voltage signals applied to the track to be converted and transmitted in RF. Column 3 at

the beginning of the detailed description of the invention discusses the transmission of RF signal to the vehicle on the track.” As discussed above, Young et al. ‘547 discloses the communication of RF command signals to the track for controlling train functions. Applicants have not disputed that. But, Young et al. ‘547 differs from the invention in several important respects, particularly with respect to conversion and transmission of the signals in RF.

As a fundamental matter, the reference does not use a transformer having a manually adjustable output voltage to select a desired speed of the model train. This manner of controlling the speed of the train by manually changing the voltage applied to the track is generally known in the art as “conventional” control. Young et al. ‘547 is directed to “command” control in which the track voltage applied by the transformer remains constant and a power master unit communicates control signals to the locomotive (e.g., via RF modulation or superimposing DC signals). While “command” control has many advantages over “conventional” control, this mode of operation is not favored by some model railroading enthusiasts that prefer to control the train speed by varying the track voltage applied by the transformer. Young et al. ‘547 directly teaches away from the use of a variable transformer output to control the train speed.

Second, the “varying voltage signals” referred to by the Examiner comprise the variable AC voltage that is applied to the track by the transformer operating in “conventional” mode. This voltage is specifically referenced in Claim 17, for example, as being manually set “to select a desired speed of the model train.” According to the invention, a sensor will detect this voltage applied to the track and convert the voltage to an RF signal that is subsequently transmitted to the locomotive. This way, the operator can control a “command” control train using a “conventional” control transformer. Applicants referred to these “varying voltage signals” in its prior remarks, which the Examiner appears to have erroneously equated with the RF signals communicated directly to the locomotive from the base unit in Young et al. ‘547. The RF signals of Young et al. ‘547 do not originate from the transformer.

Third, even if the “command” control signals applied by Young et al. ‘547 were construed as “varying voltage signals” (as stated by the Examiner), these signals are not subsequently “converted and transmitted in RF.” This is because ***the Young et al. signals are already in the form of RF.*** There is no reason to convert or transmit the signals in RF because that is the form that they are applied to the track by Young et al. ‘547. There is also no reason to sense the signals applied to the track in Young et al. ‘547 because there is no subsequent conversion or transmission of the signals. This contrasts with the present invention in which the varying voltage signals from the transformer are subsequently converted to digital control signals and then modulated onto the track as RF command signals. Hence, the invention enables an operator to control the train speed the “conventional” way using the variable transformer to vary the track voltage, and these varying voltage signals are converted to “command” mode signals for controlling the train. This is not suggested or disclosed by the prior art.

The Examiner further asserted that: “The applicant further argues that the system of Young et al ‘547 is the opposite of the invention in that the instant invention allows for a conventional controller to control a modern vehicle. There is no specific mention of this in the claims.” Respectfully, Claim 17 specifically recites “a transformer operative to provide a voltage to a block of track for a model train, the transformer including means for manually setting the voltage to select a desired speed of the model train.” This mode of operation is generally understood in the art as “conventional” control mode. As discussed above, Young et al. ‘547 teaches away from using this “conventional” control mode in favor of “command” control mode in which command signals are communicated over a fixed amplitude AC voltage applied to the track. To further clarify the invention, Applicants have amended Claim 17 to recite “wherein an operator may control the speed of the train using the transformer means to vary the voltage applied to the track, and the control box converts the varying voltage to digital messages recognized by the train under the command control mode of operation.” Other independent claims are amended in a like manner to emphasize the unique manner of

providing speed control signals in the present invention.

The Examiner refers to the control knob 34 of Young et al. '547 as controlling the speed. Notably, actuation of the cited control knob 34 does not alter the voltage applied to the track by the transformer as it would with "conventional" control. To the contrary, actuation of the cited control knob 34 causes speed control commands to be communicated to the train corresponding to the desired speed setting. Applicants do not dispute that the control knob will control the speed, but disagree that the control knob is somehow analogous to the direct control of track voltage disclosed in the present application.

The Examiner further asserts that: "One of ordinary skill would understand that, in reading Young et al. '856, that voltage sensors could be used in various realms of model train use to aid in the control of various vehicles." Respectfully, the Examiner has not met the rigorous legal standard for demonstrating a motivation or teaching to combine the references as proposed.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370 (Fed. Cir. 2000); *In re Lee*, 277 F.3d 1338, 1342-44 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347 (Fed. Cir. 1992). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

A statement that modifications of the prior art to meet the claimed invention

would have been “well within the ordinary skill of the art at the time the claimed invention was made” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). *See also In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308 (Fed. Cir. 1999) (the level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

In this case, Applicants are not simply using a voltage sensor to detect a signal. The voltage sensor is used to detect variable voltage applied by the transformer in order to convert “conventional” mode control signals to “command” control signals. Insofar as neither of the prior art references of record teach or suggest such a speed control implementation, there would be no motivation to combine the voltage sensor of Young et al. '856 with the control system of Young et al. '547.

In view of the foregoing, the Examiner failed to make a *prima facie* case of obviousness. The rejection of Claims 17-31, 33-37, and 39-46 should be withdrawn.

Accordingly, Applicants respectfully submit that Claims 17-31, 33-37, and 39-46 are in condition for allowance. Reconsideration and withdrawal of the rejections is respectfully requested, and a timely Notice of Allowability is solicited. If it would be helpful to placing this application in condition for allowance, Applicants encourage the Examiner to contact the undersigned counsel and conduct a telephonic interview.

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To the extent necessary, Applicants petition the Commissioner for a two-month extension of time, extending to March 16, 2007, the period for response to the Office Action dated October 16, 2006. The Commissioner is authorized to charge the amount of \$620.00 for the two-month extension of time (\$225.) pursuant to 37 CFR §1.17(a)(2) and for request for continued examination (RCE) (\$395.) pursuant to 37 CFR § 1.17(e), and any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0639.

Respectfully submitted,



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Date: March 14, 2007

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